BUDHA DAL PUBLIC SCHOOL PATIALA

CLASS X SCIENCE CHAPTER ELECTRICITY LESSON PLAN

Session-2020/21

PHYSICS

Term 1 : April/May 2020
UNIT : EFFECTS OF CURRENT
CHAPTER: ELECTRICITY

TOPIC : ELECTRIC CURRENT AND CIRCUITS

PRE-REQUISITE KNOWLEDGE:

Metal and Non-metal, concept of conductor and insulators, Structure of atom, concept of electrons, methods of charging etc.

TEACHING AIDS:

General teaching tools like chalk, duster, white board, marker of different color, smart class, etc the teacher will use Electric devices like Ammeter, Voltmeter, Electric cell, battery , wire , plug key, etc.

References:

- Text book NCERT Science class X
- Living Science by Dhiren Doshi

METHODOLOGY (PEDAGOGY)

- Demonstration cum lecture method.
- Activity based teaching in which active participation of students.

GENERAL OBJECTIVES:

- To inculcate the spirit of scientific method and scientific reasoning among the students.
- To make students aware of the importance of Physics.

SPECIFIC OBJECTIVES:

- To make concept of Electric charge, Electric current and circuit clear to the students in an easy

but interesting manner.

- Define electric charge , electric current and electric circuit.
- Learn S I units of used physical quantities.
- To show Textbook Numerical problem related to the topic.
- Draw symbol of electric component and circuit.

How to study electric circuit diagram:

SKILLS: Scientific Aptitude, Concept of Knowledge, Presentation, Correctness, Thinking skills, Reasoning skills, Attentiveness, Listening skills.

PROCEDURE:

TOPIC EXPLANATION:

1 Introduction

2 Electric Charge and S I units

3 Electric Current and S I units

4 Electric circuit

5 Component of electric circuits

6 Direction of flow of current

7 Numerical

LEARNING OUTCOMES:

- Make it sure that the student learns the concepts given.
- Students will be able to:
    - define electric charge , electric current , electric circuit , one ampere etc.
    - recall SI unit of physical quantities used.
    - learn formula used.
    - draw different electric symbols and electric circuits.
    - solve numerical problem given in the text book and assignments(other books).

ASSIGNMENT:

https://drive.google.com/file/d/1VSEwf-YJgLtOj6oOFXZ3iBkl4AmLODJ3/view?usp=sharing

EXTENDED LEARNING:

Student can extend their learning through the LINK .

ASSESSMENT OF LEARNING OUTCOMES

The students will be assessed by

(a) Home Assignments,Worksheets, Oral test , MCQ test etc.

You Tube Links:

https://youtu.be/iLzfe_HxrWI

https://youtu.be/zEUKEmPRHxw

https://youtu.be/azK-vVuLwCc

BUDHA DAL PUBLIC SCHOOL PATIALA

CLASS X SCIENCE CHAPTER- Human Eye and the colorful world

Session: 2020/21
Subject: PHYSICS
Term 2 : NOVEMBER/DECEMBER 2020
UNIT : NATURAL PHENOMENON
TOPIC : THE HUMAN EYE

Pre-Requisite Knowledge:

- Students must know the concepts of the visibility of objects around them
- Phenomenon of reflection and refraction of light

TEACHING AIDS

General teaching tools like chalk, duster, white board, marker of different color, smart class, etc the teacher will use a convex lens ,a prism .

References:

- Text book NCERT Science class X
- Living Science by Dhiren Doshi

METHODOLOGY (PEDAGOGY)

- Demonstration cum lecture method.
- Activity based teaching in which active participation of students.

GENERAL OBJECTIVES:

- To inculcate the spirit of scientific method and scientific reasoning among the students.
- To make students aware of the working of human eye.

SPECIFIC OBJECTIVES:

- To make students aware of converging nature of convex lens.
- Functions of various part of human eye.
- To make them understand dispersion of white light
- To make them able to answer the reason behind the natural phenomenon behind the natural light

How to draw ray diagram of refraction through a glass prism:

SKILLS: Scientific Aptitude, Concept of Knowledge, Presentation, Correctness, Thinking skills, Reasoning skills, Attentiveness, Listening skills.

PROCEDURE:

TOPIC EXPLANATION:

- Introduction
- Explain the construction of human eye by giving function of the parts
- The concept of far and near point along with power of accommodation
- How image is formed with reference to persistence of vision
- The concept of refraction when the two surfaces are inclined at an angle(glass prism)
- The splitting of white light-dispersion
- Recombination of spectrum of white light
- Cause of dispersion
- Formation of rainbow
- The concept atmospheric refraction with reference to the color of the sky and twinkling the stars
- Scattering of light(Tyndall effect)
- Applications of scattering phenomenon of light

LEARNING OUTCOMES:

- Students will be able to:
  - Understand the behavior of light
  - Functioning of the human eye
  - Understand the reason behind the natural phenomenon

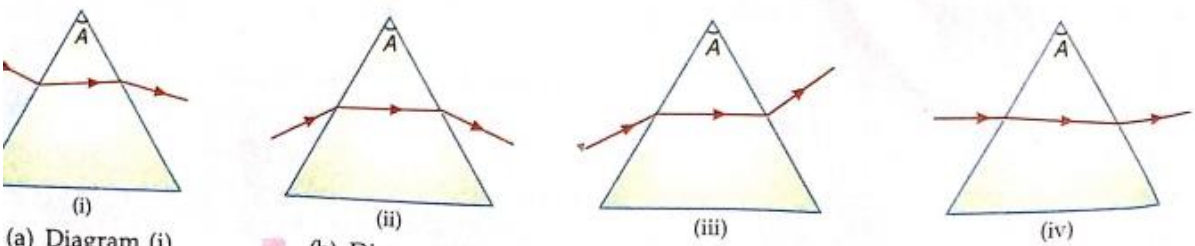
ASSIGNMENT:

The splitting of white light into a band of seven colours on passing through a glass prism is called
(a) scattering of light (b) Tyndall effect (c) dispersion of light (d) refraction of light

Which of the following statements is correct regarding the propagation of light of different colours of whit
light in air? [Exemplar Problem

(a) Red light moves the fastest.
(b) Blue light moves faster than green light.
(c) All the colours of the white light move with the same speed.
(d) Yellow light moves with the mean speed as that of the red and the violet lights.

Which of the following diagrams represents refraction of light through a prism correctly?



(i) (ii) (iii) (iv)

(a) Diagram (i) (b) Diagram (ii) (c) Diagram (iii) (d) Diagram (iv)

Which of the following phenomena of light are involved in the formation of a rainbow?
(a) Reflection, refraction and dispersion
(b) Refraction, dispersion and internal reflection
(c) Dispersion, scattering and internal reflection
(d) Refraction, dispersion and scattering

Twinkling of stars is due to atmospheric [Exemplar Problem]
(a) dispersion of light by water droplets
(b) refraction of light by different layers of varying refractive indices
(c) scattering of light by dust particles
(d) internal reflection of light by clouds.

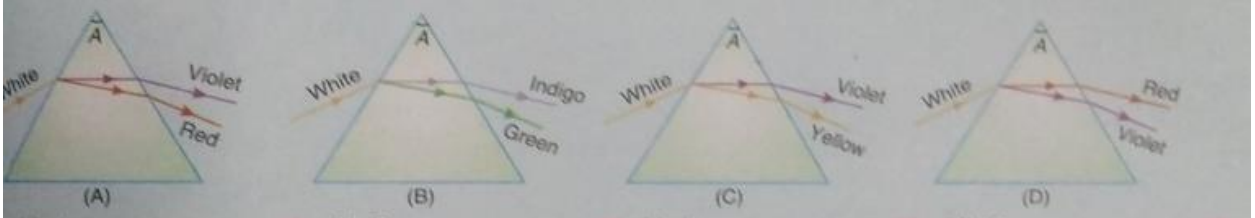
Due to atmospheric refraction, the time from sunrise to sunset at a place appears to increase by
(a) 4 minutes (b) 2 minutes (c) 12 minutes (d) $\frac{1}{2}$ minute

At noon, the sun appears white as [Exemplar Problem]
(a) light is the least scattered
(b) all the colours of the white light are scattered away
(c) blue colour is scattered the most
(d) red colour is scattered the most.

The bluish colour of water in deep sea is due to
(a) the presence of algae and other plants found in water
(b) reflection of sky in water
(c) scattering of light
(d) absorption of light by the sea.

An astronaut lands his spacecraft on the moon's surface and observes the sky. He will find the colour of the sky as
(a) deep blue (b) light blue (c) white (d) dark

Which of the following diagrams correctly shows the colours produced by dispersion caused by a prism?



(a) A (b) B (c) C (d) D

Which of the following phenomena contributes significantly to the reddish appearance of the sun at sunrise or sunset? [Exemplar Problem]
(a) Dispersion of light
(b) Scattering of light
(c) Total internal reflection of light
(d) Reflection of light from the earth

The danger signals installed at the top of tall buildings are red in colour. These can be easily seen from a distance because among all other colours, the red light [Exemplar Problem]
(a) is scattered the most by smoke or fog
(b) is scattered the least by smoke or fog
(c) is absorbed the most by smoke or fog
(d) moves fastest in air.

ASSESSMENT OF LEARNING OUTCOMES

The students will be assessed by

(a) Home Assignments,Worksheets, Oral test , MCQ test etc.

You Tube Links:

https://youtu.be/U_wTfpYK_ms

https://youtu.be/KCfR_iNsW6k

https://youtu.be/8Xcpq6e8pBY

BUDHA DAL PUBLIC SCHOOL PATIALA

CLASS X SCIENCE CHAPTER- LIGHT REFLECTION AND REFRACTION

Session: 2020/21
Subject: PHYSICS
Term 1 : SEPTEMBER/OCTOBER 2020
UNIT : LIGHT
TOPIC : REFLECTION and REFRACTION

Pre-Requisite Knowledge:

- Students must know the concepts of the visibility of objects around them
- Properties of light
- Characteristics of image formed by plane mirror
- Reflection of light by plane mirror
- Laws of reflection
- The concept of real and virtual images

TEACHING AIDS

General teaching tools like chalk, duster, white board, marker of different color, smart class, etc the teacher will use Plane Mirror,Concave Mirror ,Convex Mirror and glass slab

References:

- Text book NCERT Science class X
- Living Science by Dhiren Doshi

METHODOLOGY (PEDAGOGY)

- Demonstration cum lecture method.
- Activity based teaching in which active participation of students.

GENERAL OBJECTIVES:

- To inculcate the spirit of scientific method and scientific reasoning among the students.
- To make students aware of the importance of Physics.

SPECIFIC OBJECTIVES:

- To make students aware of converging and diverging nature of curve mirrors
- The magnification and the mirror formula
- Sign conventions for mirrors
- To show Textbook Numerical problem related to the topic

How to draw ray diagrams to obtain the image of the object:

SKILLS: Scientific Aptitude, Concept of Knowledge, Presentation, Correctness, Thinking skills, Reasoning skills, Attentiveness, Listening skills.

PROCEDURE:

TOPIC EXPLANATION:

- Introduction
- The concept of construction of spherical mirrors
- Important terms in context to spherical mirrors
- Relationship between focal length and radius of curvature
- Ray selection for image formation
- Ray diagrams for different positions of the objects
- Uses of spherical mirrors
- Mirror formula and linear magnification-Concept and numerical
- Refraction of light
- Optically rarer and denser media
- Cause and laws of refraction
- Refractive Index-Formula and numericals
- Spherical Lens with ray diagrams and numericals
- Lateral Shift in a glass slab
- Power of a lens-Formula ,units and numericals

LEARNING OUTCOMES:

- Students will be able to:
    - Understand the behavior of light from opaque and transparent objects
    - Draw the ray diagrams and make inferences
    - Infer about the speed of light with reference to the absolute refractive index of the material media
    - To calculate the power of combination of Two or more thin lens in contact

ASSIGNMENT:

Short Answer Based questions for Refraction

1. What is refraction of light?
2. What the speed of light in glass is as compared to speed of light in vacuum. ?
3. What is the unit of refractive index?
4. Why a concave lens is called diverging lens?
5. Define Snell's law of Refraction.
6. Write the relation between the angle of incidence and angle of refraction for a medium.
7. For total internal reflection to occur, the light must pass from denser to rarer medium. Is this True or false?
8. What type of lens is used in a simple microscope?

Match the column

Column A	Column B
The power of the lens is negative	Convex lens
The lens is diverging	Concave lens
The power of the lens is positive	
The lens is converging in nature	
The lens is thick at the center but thinner at the edges	
The lens is thin in the middle and thicker at the edges	
It has real focus	
It has virtual focus	

Link Comprehension type

Question A lens X has following observation

a. When the objects is placed at infinity, the image is formed at focus of the lens

b. When a object is placed at 60 cm from the lens, A real image is forced at 10 cm from lens on other side

c. The lens has positive Power

Answer following based on the data given above

1. The lens is
   a. Convex
   b. Concave
2. The focal length of the lens is
   a. 20 cm
   b. 10 cm
   c. 25 cm
   d. None of these
3. The power of the lens
   a. 10 D
   b. 5 D
   c. 4 D
   d. None of these
4. When the object is placed at a distance twice the focal length in front of lens, what will be characteristics of the image formed
   a. A real inverted image of same size will be formed at a distance twice the focal length
   b. A real ,erect image of high diminished size will be formed at a distance twice the focal length
   c. A high enlarged image at infinity will be formed
   d. None of these
5. When the lens is placed close to the page of book, the letters of the page appear
   a. Highly diminished
   b. Enlarged
   c. Same size as object
   d. None of these

Fill in the blanks

1. The refractive index of a medium gives an indication of the ……Ability of that medium
2. When a ray of light goes from water to air, it bends ……From the normal
3. When a ray of light goes from air to glass, it bends ……The normal
4. The speed of light is …… in glass then air
5. The absolute refractive index is always ….. then unity
6. The relative refractive index can be less then ……

ASSESSMENT OF LEARNING OUTCOMES

The students will be assessed by

(a) Home Assignments,Worksheets, Oral test , MCQ test etc.

You Tube Links:

https://youtu.be/E-zQ51o90tI

https://youtu.be/AElLVGW9kxQ

https://youtu.be/0xbbfJB69_c

BUDHA DAL PUBLIC SCHOOL PATIALA

CLASS X SCIENCE CHAPTER ELECTRICITY LESSON PLAN

Session-2020/21

PHYSICS

Term 1 : JULY 2020
CHAPTER: MAGNETISM

TOPIC : Magnetic Effects of Electric Current

PRE-REQUISITE KNOWLEDGE:

- Attractive and repulsive properties of magnet
- Difference between artificial and natural magnets
- Properties of bar magnet

TEACHING AIDS:

General teaching tools like chalk, duster, white board, marker of different color, smart class, etc the teacher will use a bar magnet ,iron fillings, copper wire,battery,swtich

References:

- Text book NCERT Science class X
- Living Science by Dhiren Doshi

METHODOLOGY :

- Demonstration cum lecture method.
- Activity based teaching in which active participation of students.

GENERAL OBJECTIVES:

- To inculcate the spirit of scientific method and scientific reasoning among the students.
- To make students aware of the importance of Physics.
-

SPECIFIC OBJECTIVES:

- To make concept of Electric charge, Electric current and circuit clear to the students in an easy but interesting manner
- To make students understand the relationship between electricity and magnetism
- The concept of magnet field and magnetic field line
- Draw the magnetic field line around a straight conductor ,a loop and solenoid
- To make them understand the concept of electromagnetic induction
- Electric motor working and principle

How to study magnetic field lines:

SKILLS: Scientific Aptitude, Concept of Knowledge, Presentation, Correctness, Thinking skills, Reasoning skills, Attentiveness, Listening skills.

PROCEDURE:

TOPIC EXPLANATION:

- Magnetic effect of current-Oersted's Experiment
- Plotting of magnetic field lines
- Properties of magnetic field lines
- Field lines due to a pair of bar magnets
- Effects of reversing the direction of current
- Factors effecting strength of magnetic field
- Right hand thumb rule
- Force experienced by a moving charge in a magnetic field
- Flemings Left hand rule
- Electric motor-Principle,construction,working,applications
- Electromagnetic Induction

ACTIVITIES:

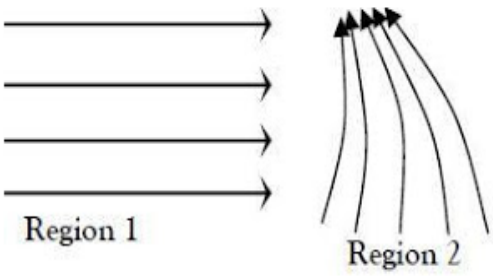
- To show magnetic effect of current carrying wire
- To show the direction of magnetic field developed due to current
- To show that a current carrying conductor placed in a magnetic field experiences force
- Faradays Experiment

LEARNING OUTCOMES:

- Make it sure that the student learns the concepts given.
- Students will be able to:
    - define magnetic field,solenoid,electromagnet,electromagnet induction
    - recall the diagrams
    - learn formula used

ASSIGNMENT:

1. What effects do you expect on passing current through a conductor?
2. How it can be shown that a current carrying conductor produces a magnetic field?
3. Why compass always align itself in approximately north–south direction?
4. Why some substances exhibit magnetism naturally, while others don't?
5. What do you mean by 'magnetic field lines'?
6. List the characteristics of magnetic field lines?
7. How magnetic field lines are drawn?
8. How one can represent a region of uniform magnetic field using magnetic field lines?
9. Why two magnetic field lines never cross each other?
10. What is the direction of magnetic field line?
11. What is necessary to have a magnetic field?
12. What do you mean by magnetic field?
13. If equal number of electrons and proton travels in same direction, will there be any magnetic field produced?
14. Is it possible that magnetic field line emerging out of north pole of one bar magnet can enter the south pole of another bar magnet?
15. Can magnetic field lines of two different bar magnets cross each other on bringing the bar magnets closer?
16. Consider that there is a long queue of electrons at rest. Will you experience any magnetic field moving along this queue of electrons?
17. Can we separate north pole and south pole of a magnet?
18. What will happen if we break a bar magnet into two equal halves?
19. Magnetic fields in two different regions described by magnetic field lines as shown below.



What conclusion one can draw about the magnetic fields in region 1 and 2?

ASSESSMENT OF LEARNING OUTCOMES

- The students will be assessed by
- Home Assignments,Worksheets, Oral test , MCQ test etc.

You Tube Links:

https://youtu.be/vgWiBYuPpjw

https://youtu.be/yA8gZM3fghc

https://youtu.be/8li1Vp8vLaI

https://youtu.be/j_F4limaHYI